

REMARKS

Applicant gratefully acknowledges that applicant's request for reconsideration of the finality of the rejection of the last Office Action was persuasive and, therefore, the Examiner has withdrawn the finality of that action.

The Examiner has rejected claim 1 under 35 U.S.C. § 102(b) as being anticipated by Esposto U.S. Patent Number 5,743,325. Referring to claim 1, the Examiner contends that Esposto discloses a flexible heat transport design for deployable radiator applications that comprises first and second opposite facing payload radiators 14 and 16 (see Figure 1); first and second opposite facing opposite facing deployable radiators 10 and 12 (see Figure 1); and one or more coupling heat pipes 20 that cross couple opposite facing payload and deployable radiators (see Figure 1).

The Examiner in referring to claim 2 states that Esposto shows that one or more coupling heat pipes 20 comprises loop heat pipes (see col. 2 lines 58-67 and col. 3 lines 1-3).

Applicant respectfully submits that in Esposto ('325) there is disclosed "a closed-loop heat pipe transport design for a deployment application having a flexible section which connects to a payload structure and a deployable structure. The flexible section folds over itself while the deployable structure is stowed. Upon rotation of the deployable structure around a predetermined axis, the flexible section unfolds, with a portion of the flexible section passing through the predetermined axis. When the deployable structure has completed its rotation and is fully deployed, the components of the flexible section will lie in substantially the same plane."

① Applicant respectfully submits that nowhere in Esposto in Figure 1 relating to radiators 14 and 16, first and second opposite facing deployable radiators 10 and 12 and one or more coupling heat pipes 20 that cross couple according to the Examiner "opposite facing payload and deployable radiators" is there to be found one or more coupling heat pipes that cross-couple opposite facing payload and deployable radiators as in the claims of the instant invention.

Applicant respectfully submits that as may be clearly seen in Esposto ('325) at col. 3, lines 36-38 "A serpentine section is fastened to the payload structure on one end and to the deployable radiator on the other end" which clearly denotes that the payload radiator is thermally coupled by a serpentine apparatus to the adjacent deployable radiator and not to the opposite radiator as is seen in Applicant's instant invention in Fig. 1 where it is clearly stated on page 3, line 29 et seq. thereof "The north facing payload radiator 21 is thermally coupled to the south facing deployable radiator 24 by means of one or more coupling heat pipes 25 which are preferably loop heat pipes 25. Similarly, the south facing payload

radiator 22 is thermally coupled to the north facing deployable radiator 23 by means of one or more coupling or loop heat pipes 25."

Applicant respectfully submits that in Esposto ('325) col. 4, line 12 et seq. it is clearly stated "The serpentine section 20 is fastened on one end to the fixed radiator panel 14 and on the other end to the deployable radiator 10." Applicant respectfully directs the Examiner's attention to Fig. 1 wherein it clearly may be seen that elements 10 and 14 are adjacent to each other and not on the opposite sides of the satellite as required in the recited claims. The same is true with respect to fixed radiator 18 and deployable radiator 12 on the opposite side. They are connected to each other and not to opposite facing radiators in a fixed to deployable configuration.

Again in Fig. 2, line 28 et seq. of Esposto ('325) Applicant respectfully submits it is stated "The serpentine section 24 is shown connected to a fixed radiator 28 and a deployable radiator 26 forming an arc between the fixed radiator and deployable radiator 26." When deployed the deployable radiator and fixed radiator are adjacent to each other, and in any event are on the same side of the satellite, and not connected in a deployable to fixed configuration, on opposite sides of the satellite such as the north and south faces, as required in the recited claims. Again in Fig. 4, as described in lines 38 et seq. of Esposto ('325), it is clearly stated "in accord with the preferred embodiment, the serpentine section 32 unfolds and is connected to both a fixed radiator 36 and a deployable radiator 34" which are clearly seen to be on the same side of the satellite, not opposite sides in a fixed to deployable configuration as recited in the claims of the instant invention.

~~Applicant respectfully submits that this connection of fixed to deployable is~~
consistent throughout Esposto ('325) and clearly teaches away from the fixed to deployable connection on opposite sides of the satellite as recited in the claims of the instant invention.

The Examiner has rejected claims 3, 4 and 5 under 35 U.S.C. § 103(a) as being unpatentable over the combined teachings of Esposto ('325) and Caplin U.S. Patent Number 5,806,800. The Examiner states that Esposto discloses the Applicant's invention as claimed with the exception of providing a body and a plurality of solar arrays. The Examiner goes on to say that Caplin discloses a dual function deployable radiator cover that does provide a body 12 (see Figure 1) and a plurality of solar arrays 18 (see Figure 1). The Examiner concludes that it would be obvious to modify Esposto's invention by providing a body and a plurality of solar arrays in order for the invention to function properly.

Applicant respectfully submits that in Caplin ('800) there is disclosed a dual function deployable radiator and radiator cover for use on a communication satellite. A deployable radiator is folded or in a "stowed" configuration over a fixed radiator when a satellite is in a launch vehicle. The deployable radiator thereby serves as insulation for the satellite when

heat rejection is not necessary. When heat rejection becomes necessary, the deployable radiators are deployed whereby unwanted heat is rejected from the satellite. The deployable radiators, therefore serve a dual purpose, functioning as insulators for part of a mission and radiators for the remainder. As may be seen clearly in Figures 2 and 3, the payload radiators are connected to deployable radiators on the same side of the satellite and not on opposite sides of the satellite.

At col. 3, line 35 et seq. in Caplin ('800) it is stated "There are fixed and deployable radiators on a payload structure 36. Typically, fixed radiators are employed on the sides of the exterior of the satellite. Up to four deployable radiators may be located on the exterior of the satellite, each connected to the payload structure by (1) a hinge and (2) a means for transferring heat generated by heat dissipating elements in the payload module to the deployable radiator." This connection is a deployable to payload radiator configuration clearly seen to be on the same side of the satellite. Further, in Fig. 3 of Caplin ('800), Applicant respectfully submits, there is an illustration showing deployable radiator 62, 64, 66 and 68 in the deployed position; and fixed radiators 70 and 72 which are exposed upon deployment of the deployable radiators. Before deployment, the deployable radiators 62, 64, 66 and 68 cover the fixed radiators 70 and 72 and serve as insulators for the satellite. After deployment, the heat rejecting surfaces of the deployable radiators 62, 64, 66 and 68 are exposed to space, and work to reject unwanted heat from the satellite. The deployable radiators 68 and 66 are clearly connected to payload radiator 72 on one side of the satellite while on the other side of the satellite deployable radiators 62 and 64 are connected directly to the payload radiator 70 on the other side of the satellite. Applicant respectfully submits that this is clearly distinguishable from the deployable to payload coupling configuration on opposite sides of the satellite as recited in the claims of the instant invention.

Applicant respectfully submits that all of the claims presently under prosecution have been shown to contain non-obvious patentable subject matter and to be patentably distinguishable over the prior art of record either Esposto ('325) alone or Esposto in view of Caplin ('800) in any combination.

Accordingly, Applicant respectfully requests that this application be reviewed and reconsidered in view of the above remarks and that a Notice of Allowance be issued at any early date.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'AW Karambelas', written in a cursive style.

Anthony W. Karambelas
Registration No. 25,657

Karambelas & Associates
655 Deep Valley Drive, Suite 303
Rolling Hills Estates, CA 90274
Telephone: (310) 265-9565
Facsimile: (310) 265-9545